

Title: SPACE EXPERIMENTS WITH PARTICLE ACCELERATORS: SEPAC

Prepared by: Bill Robert, NASA/MSFC

Short Description: The SEPAC instruments consist of an electron accelerator, a plasma accelerator, a neutral gas ( $N_2$ ) release device, particle and field diagnostic instruments, and a low light level television system. These instruments are used to accomplish multiple experiments: to study beam-particle interactions and other plasma processes; as probes to investigate magnetospheric processes; and as perturbation devices to study energy coupling mechanisms in the magnetosphere, ionosphere, and upper atmosphere.

#### Instrument Characteristics:

Mass:	600 kg
Volume:	3 cubic meters
Power:	1.5 kW
Data Rate:	512 kbs plus 1 analog and 1 video

#### General Comments:

Heritage is from Spacelab instrument flown in 1983 on Spacelab I, and scheduled for reflight on the Earth Observation Mission (1986) and Space Plasma Lab (1990, 1992).

No scanning is required. SEPAC television provides its own pointing system. SEPAC electron accelerator provides deflection coils for beam pointing.

For more information contact: Bill Roberts, PS02  
NASA/MSFC  
Huntsville, AL 35812  
(205) 453-3430

## SEPAC PALLET-MOUNTED HARDWARE

